

CLAIMS

1. An automatically operating fermentation vat for winemaking establishments which includes a main vat (2), an upper vat (4) over the main vat, an uplift pipe (8, 12, 10, 24, 26) for conveying the fermenting liquid from the bottom of the main vat to the upper vat, means (16, 14, 18) for discharging this liquid from the upper vat into the main vat in such a way that it sprays the layer of marc floating on the surface of the main vat, and injector means (20, 32) associated with the uplift pipe for injecting oxygen-containing gas into the liquid as it flows through this pipe, characterised in that the uplift pipe has a first outlet aperture (24) which feeds the liquid into the upper vat (4) and a second outlet aperture (40) which feeds the liquid into the mass of liquid in the main vat, selective valve means (22) being associated with the uplift pipe for selectively directing the liquid into the upper vat or into the main vat, or into both at the same time through the two said outlet apertures.

2. A fermentation vat according to Claim 1, characterised in that the said injector means (28, 32) includes a nozzle (28) with a narrow opening (30) and a side pipe (32) adjacent the said nozzle for aspirating ambient air, on/off valve means (4) being provided for cutting off the flow of air aspirated through the said intake pipe (32).

3. A fermentation vat according to Claim 1 or Claim 2, characterised in that the said selective valve means (22) include a valve body (51) in the shape of a hollow cylinder, at least two outlet apertures (52a, 52b) in the lateral surface of the said valve body, an inlet aperture (51c) in

one end of the said valve body and a substantially cylindrical valve shutter (80) arranged for coaxial rotation within the said body and shaped so as to form a 90° elbow joint between the said intake aperture and one of the said outlet apertures.

4. A fermentation vat according to Claims 1 to 3, characterised in that the said injector means (28, 32) are located in the uplift pipe upstream of the said selective valve means (22).

5. A fermentation vat according to Claims 1 to 3, characterised in that the said injector means (28, 32) are located on the uplift pipe downstream of the said selective valve means (22) and on at least one of the pipes (24, 26) leading from the said valve means (22) to deliver the liquid into the upper vat and/or into the main vat.

6. A fermentation vat according to Claims 1 to 5, characterised in that it includes a control unit (38) which cooperates with the said selective valve means (22) associated with the uplift pipe and is operable to control:

- operations to oxygenate the liquid in the main vat (2) by drawing off liquid from the bottom of the said vat, aspirating ambient air, mixing it into the flow of liquid and returning the oxygenated liquid to the main vat, and
- operations to oxygenate the liquid in the main vat (2) by drawing off liquid from the bottom of the said vat, aspirating air and mixing it with the flow of liquid, then conveying the oxygenated liquid to the upper vat (4) and discharging it therefrom into the main vat, thereby spraying the marc cap floating on the must.

7. A fermentation method, in particular for red wine, carried out in a fermentation vat according to Claims 1 to 6, characterised in that it includes the steps of:

a) carrying out cycles for oxygenating the liquid in the main vat by drawing off liquid from the bottom of the said vat, aspirating ambient air and mixing it with the flow of liquid and returning the oxygenated liquid to the mass of liquid in the main vat, and

b) carrying out cycles for oxygenating the liquid in the main vat by drawing off liquid from the bottom of the said vat, aspirating ambient air and mixing it with the flow of liquid, conveying the oxygenated liquid to the upper vat and discharging this liquid from there into the main vat, thereby spraying the marc floating on the liquid contained therein.

8. A method according to Claim 7 in which the said operation a) is carried out at the start of the fermentation process and/or at the end of the fermentation process in order to encourage the marc cap to separate and float to the surface.